



K13 Pesticide Intoxications in Cukurova, Turkey: A Three Year Analysis

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The goal of this study is to show the distribution of pesticides in the Cukurova region and alert the forensic toxicologists to notice pesticides in all autopsy cases at this region.

This presentation will impact the forensic science community by demonstrating how organochlorine pesticides are still a serious threat for public health although the WHO has forbidden the use of these substances all over the world.

Cukurova region is one of the most important agricultural areas for Turkey. As a consequence of wide pesticide use, acute pesticide poisoning cases are quite common, in this region. These poisonings are generally suicidal self poisonings, while can be accidental or homicidal as well. In Cukurova, pesticide poisonings still remain as a considerable cause of death, which lead the present retrospective evaluation.

The autopsy records of Adana Group Authority of the Council of Forensic Medicine, between 2006 and 2008, were evaluated retrospectively. Deaths that are attributed to pesticide poisoning included in the scope of the study in order to identify the type of pesticide, as well as the etiology. The frequency and distribution of intoxications were also analyzed in terms of sex and age.

In the studied period, a total of 4,199 autopsies had referred to the forensic toxicology laboratory for pesticide analysis. Pesticide analyses were performed in the Forensic Toxicology Laboratory of Adana Group Authority of the Council of Forensic Medicine, using different biological samples (blood, stomach, liver, lung, and kidney) by chromatographic methods, gas chromatography with electron capture detection (GC- ECD), and gas chromatography with nitrogen phosphorus detection (GC-NPD) and gas chromatography-mass spectrometry (GC-MS).

Seventy-two out of all cases were positive for pesticide analysis. Of these 72 cases, 42 (58.33%) were male and 30 (41.66%) were female, with a mean age of 38.8 ± 20.6 years. Among the inspected pesticides, endosulfan was found to be the most common with 47.2% prevalence, followed by an organophosphorus insecticide dichlorvos with a prevalence of 16.7%. Majority of deaths due to pesticide poisonings (37, 51.38%) were suicidal while (17, 23.61%) of them were accidental. The high ratio of suicidal deaths due to pesticides was a consequence of easy availability and accessibility of uncontrolled pesticides in households at city centers and in villages of countryside.

This report showed that endosulfan, an organochlorine pesticide, is commonly used in Cukurova region. Moreover, frequency of acute and chronic exposure to endosulfan is considerably high in Cukurova region. Recently, strict regulations have been enacted for restricting and controlling the use of endosulfan, of which use was previously allowed. Furthermore, authorities should set more efficient educational facilities for agricultural workers in order to reduce the number of accidental pesticide poisonings.

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